TR2 RX
Cable Management 450W

power Supply
ATX 12V 2.2 Version

Thermaltake
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E193705 R43016

User's Manual >>

TR2 RX Cable Management 450W Power Supply

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1. Introduction

We live up to the promise of Thermaltake logo in our unending quest for excellence.
Shall you have any suggestion or comments, please access our web site :
http://www.thermaltake.com
http://www.tr2tt.com
or e-mail to :
thermaltake@thermaltake.com
sales.tr@tr2tt.com
we appreciate your kindly feedback and you will receive the prompt response from our customer service team.

Thank you for choosing a quality Thermaltake TR2 RX Cable Management 450W PC Power Supply. We trust that you will find it providing you with many years of service.

You can always find a Thermaltake TR2 RX Cable Management 450W PC Power Supply that is suitable for all of your modern PC power needs.

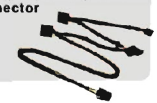
Please take the time in familiarize yourself with the power supply, its connectors and the contents of this manual before proceeding with the installation of the power unit. You will need a Phillips crosshead screwdriver, perhaps your PC case manual and most certainly your motherboard manual.

2. Components Check

1

450W power supply unit
(With one 24-pin main power connector & one 4-pin power connector)

2 Two sets ofwires with 4-pin peripheral power connector



3 One set of wireswith 6-pin PCI-Express power connector

4 One set of wirewith 5-pin SATA *connectors*

5 One AC Inputpower cord

6 4 mounting screws

7 User manual

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3 Installation

3.1 Warnings and Cautions

3.1.1 Do not pull the AC power cord when the power supply is in use or else damage to components will result.

3.1.2 Do not store the Power Supply in a high humidity and high temperature environment.

3.1.3 When using TR2 RX Cable Management 450W power supply under testing conditions where the power supply unit is not installed in a PC with its components, please follow the steps below:

1)Please take a paper clip and untwist it.
2)Make sure the power supply unit is in the "OFF" position.
3)Locate the 20 or 24 pin motherboard connector from the power supply unit.
4)Plug one side of the paper clip into the green wire hole.
5)Plug the other side of the paper clip into any of the black wire holes.
6)Turn on the PSU to see if the power supply fans turn on.

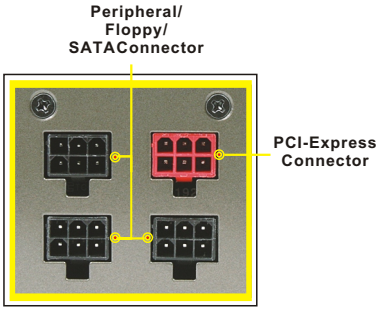
3.1.4 High voltages exist in the power supply. Do not open the power supply case unless you are an authorized service technician or electrician.

3.1.5 All warrantees and guarantees shall be voided should there be a failure to comply with any of the warnings and cautions covered in this manual.

3.2 Embedded Socket and Modularized Cable Management

3.2.1 Embedded Socket and Modularized Cable Management:
The new embedded socket and modularized cable management allows user use only the cables they need and improve the airflow in the chassis.

Embedded Socket and Modularized Cable Management Design:



3.2.2 TR2 RX Cable Management 450W unit: On the power supply, you will find sockets to connect with those cables. Users can choose which wire set they want to use for devices, graphic card, fans, etc. Inside the package, you will find the following wire set:

1. One 4-pin +12V connector
2. Six 4-pin peripheral power connectors and two 4-pin floppy drive connectors
3. Two 5-pin S-ATA connectors
4. One 6-pin PCI-Express graphic card connector

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3.3 Installation Steps

To prevent electrical shocks, please disconnect the power cord from your existing power supply unit. Before you install your new TR2 RX Cable Management 450W power supply, please check the red power supply voltage switch setting. You need to match your local power voltage(115V use for North America, Japan, etc., 230V use for Europe, South Africa, and other countries). If you don't use the proper voltage setting, you may damage your system and void the warranty. TR2 RX Cable Management 450W PSU has voltage selector which can change to 115V/230V.

Installation Steps

3.3.1 Disconnect the power cord from your old power supply.

3.3.2 Follow your computer case manual and disassemble the case.

3.3.3 Disconnect all the power connectors from the motherboard and from the peripheral devices such as case fans, hard drives, floppy drives. etc.

3.3.4 Remove the existing power supply from your computer case and replace it with your new Thermaltake TR2 RX Cable Management 450W PSU.

3.3.5 Connect the power connectors to the motherboard and peripheral devices (refer to the rest of this manual to match the various one-way key-locked connectors to the motherboard and accessories).

3.3.6 Connect the 6-pin PCI Express connector to PCI Express graphic card if you need.

Note: Please read the user manual supplied with your graphic card for detail usage instructions.

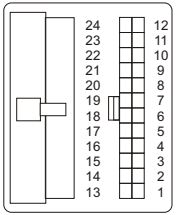
3.3.7 Close the computer case.

3.3.8 Make sure your power supply switch is on "OFF" position, and connect the supplied power cord to your Thermaltake TR2 RX Cable Management 450W PSU.

4. Product Specification

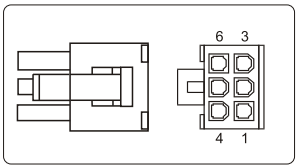
4.1 Output Specification

Main Power Connector



Voltage	Color	Pin	Pin	Color	Voltage
+3.3 V	Orange	1	13	Orange	+3.3 V
+3.3 V	Orange	2	14	Blue	-12 V
COM	Black	3	15	Black	COM
+5 V	Red	4	16	Green	PS_ON#
COM	Black	5	17	Black	COM
+5 V	Red	6	18	Black	COM
COM	Black	7	19	Black	COM
PWR_ON	Gray	8	20	N/C	N/C
+5 Vsb	Purple	9	21	Red	+5 V
+12 V_1	Yellow	10	22	Red	+5 V
+12 V_1	Yellow	11	23	Red	+5 V
+3.3 V	Orange	12	24	Black	COM

PCI Express connector (6 pin)



Color	Signal	Pin
Yellow	12V,DC	1
Yellow	12V,DC	2
Yellow	12V,DC	3
Black	COM	4
Black	COM	5
Black	COM	6

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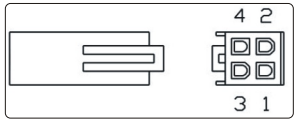
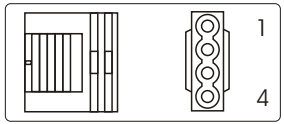
+12V connector (4 pin)



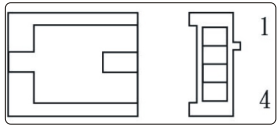
Color	Signal	Pin
Black	COM	1
Black	COM	2
Yellow	12V,DC	3
Yellow	12V,DC	4

Peripheral connector (4 pin)

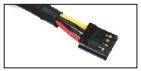


Color	Signal	Pin
Yellow	+12V,DC	1
Black	COM	2
Black	COM	3
Red	+5VDC	4

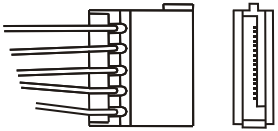
Floppy disk connector (4 pin)



Color	Signal	Pin
Red	+5VDC	1
Black	COM	2
Black	COM	3
Yellow	+12V,DC	4



Serial ATA Power Connector



Color	Signal	Pin
Yellow	+12V1DC	1
Black	COM	2
Red	+5VDC	3
Black	COM	4
Orange	+3.3 VDC	5

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4.2 TR2 RX Cable Management 450W PSU Specification

Features:

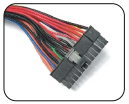
- Complies with ATX 12V 2.2 Version.
- Compatible with latest dual PCI-Express and Dual Core CPU configuration.
- Modularized cable management improves internal airflow.
- PFC function improves energy efficiency.
- Super quiet and stable 140mm ball bearing fan.
- Gold-plated connector for better conductivity.
- Built in industrial-grade protections: Over Current, Over Voltage, and Short-Circuit.
- Safety / EMI Approvals: UL, CUL, TUV, FCC and CE certification.

140mm Fan Design - Optimum Air flow and Lowe Noise

SPECIFICATION	
P/N	W0146
Maximum Power	450 Watts
Color	Hi-Tech Black
Switches	ATX Logic on-offadditional power rocker switch
PFC (Power Factor Correction)	*Passive PFC*
Cooling System	One 140mm Fan: SPEED : 1900 RPM(+/-10%) DIMENSION : 140 x140 x 25 mm AIR FLOW: 86.5 CFM TEMP. AUTOCONTROL BEARING TYPE: Two Ball-Baring
Noise	16dB at 1300 RPM
P. G. Signal	100-500 ms
Over Voltage Protection Recycle AC to Reset	+5V output 7.0 Vmax +3.3V output 4.5 Vmax +12V output 15.6 Vmax
DIMENSIONS	
Unit Size	160mm(L)X150mm(W)X86mm(H)
Net Weight	2.13 kg
INPUT	
Input Voltage	115 VAC / 230 VAC
Input Frequency Range	50Hz / 60Hz
Input Current	10.0A / 5.0A
Hold-up Time	16ms(minimum) at 80% of Full Load, at 230Vac input
Efficiency	> 70%

➤ Technology Features

140mm fan - High thermal performance

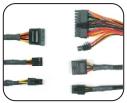


Universal 24(20) pin Main Connector

Dual +12V Rails

PCI-Express Connector

➤ Cable Application

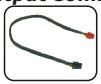


Intelligent Cable Management:

- All cables are sleeved with black mesh cable sleeving
- Optimum air-flow currents within the chassis

➤ Total Output Connector

24-pin Main Connector X1 & 4-pin +12V X1



6-pin PCI Express Connector X 1

4-pin Peripheral Connector X 6 and Floppy Connector X 2

5-pin S-ATA Connector X 2

	OUTPUT					
	+3.3 V	+5 V	+12 V 1	+12 V 2	-12 V	+5 VSB
Max. Load	30 A	28 A	14 A	15 A	0.3 A	3.0 A
Min. Load	0.5 A	0.3 A	1.0 A	1.0 A	0.0 A	0.0 A
Peak load	--	--	16 A	--	--	3.5 A
Load Reg.	+5% ~ -5%	+5% ~ -5%	+5% ~ -5%	+5% ~ -5%	+10% ~ -10%	+5% ~ -5%
Ripple V(p-p)	100 mV	100 mV	150 mV	150 mV	150 mV	100 mV

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4.3 Other Specification

4.3.1 Inrush Current:
No damage at 25°C cold start.

4.3.2 Power Efficiency:
70% (min.) at full load, 115Vac and 230Vac input. Test below as:

	+5V	+12V1	+12V2	+3.3V	-12V	+5Vsb
LOAD	9.0A	12.0A	14.0A	11.0A	0.3A	1.0A

4.3.3 Note:
The combined power of +5V and +3.3V is 140W max.
Peak currents may last up to 17 seconds with not more than one occurrence per minute.
Add 0.1uF and 10uF capacitors across output terminal during ripple & noise test.

4.3.4 Hold-Up Time:
16msec (minimum) at 80% of full load, at 230AC input.

4.3.5 Power Good Delay:
100-500 msec.

4.3.6 Power Fail Delay:
>1 msec.

4.3.7 Turn-On Delay Time:
2000 msec max.

4.3.8 Rise Time:
20ms max at full load.

4.3.9 MTBF at 25°C (demonstrated)
100KHrs minimum

4.4 Protection:

If the power supply protection that latch off all main outputs. (when OCP, OVP or short protection is working).Reset by cycling remote on/off control or AC power.+5Vsb is recovery.

4.4.1 Over Current Protection
+5V & +3.3V Not over 240VA for every output voltage
+12V1 & +12V2 26A~32A

4.4.2 Over Voltage Protection
+3.3V output 4.5 Vmax
+5.0V output 7.0 Vmax
+12.0V output 15.6 Vmax

4.4.3 Short Protection
All outputs to GND.

4.5 Environment:

4.5.1 Operating Temp. 0°C to +40°C
4.5.2 Storage Temp. -20°C to +70°C
4.5.3 Operating Humidity 20% to 90%, non-condensing
4.5.4 Storage Humidity 5% to 95%, non-condensing
4.5.5 Operating Altitude 0 to 10,000 feet
4.5.6 Storage Altitude 0 to 50,000 feet

4.6 Hi-Pot: (Input/Output isolation)

4.6.1 Primary to Secondary
3535Vdc for 1 minute

4.6.2 Insulation Resistance
Primary to earth ground 500Vdc, 50M ohms Min.

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4.7 EMI & Safety

4.7.1 Conducted EMI
1. Meet FCC: Class B
2. Meet CISPR 22: Class B
3. Meet VCCI: Class B

4.7.2 Safety Standards
1. Meet UL/CUL (UL 60950)
2. Meet TUV EN60950
3. Meet CB (IEC 60950)
4. Meet CE
5. HARMONIC (IEC61000-3-2 CLASS D)

5. Trouble Shooting

Condition 1: No DC output. The fan or fans are motionless
Check:
1-1 Is the AC inlet plug firmly plugged into the PSU inlet socket?
1-2 Is the wall socket, extension power cord, power strip or surge protector in use, fully functional and wall power switch turned 'ON'?
1-3 Is the Main Board socket (24pin) plug fully and firmly inserted?

Condition 2: The fan or fans began rotating and then stopped. The system hangs without proceeding any further.
Check:
2-1 Are the peripheral connectors firmly plugged into accessory devices, such as the main hard drive, CD ROM , etc?
2-2 If a plug has been inadvertently connected in an off-set or reversed position, unplug the AC power source, reconnect the offending connectors and then wait for 30 seconds before replug in the AC power source and try again.

Note:
If the power supply still cannot or is still unable to power up after following the above instruction, please send the unit back to your dealer or retailer for after sales service.

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Should you have any questions regarding the aforementioned steps, please contact Thermaltake directly. Failure to follow the proper procedures may cause severe bodily harm or PC component damage.

For Support or General Inquiries, please contact us at:

❶ Thermaltake Technology USA
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